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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 HANFORD PROJECT OFFICE
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RICHLAND, WASHINGTON 99352

November 16, 1993

Paul Pak
U.S. Department of Energy
P.O. Box 550, A5-19
Richland, Washington 99352

Re: Record of Decision Requirements for 200-BP-1 Operable Unit

Dear Mr. Pak:

Recently, the Department of Energy (DOE) has requested a letter from the Environmental Protection Agency (EPA) stating the necessary requirements to support the use of covers on the 200-BP-1 Operable Unit (OU). This letter transmits the requirements DOE must meet to support the Record of Decision (ROD) for this operable unit. According to 40CFR265.310 the following requirements must be met for cover design; (1) provide long-term minimization of migration liquids through the closed landfill, (2) function with minimum maintenance, (3) promote drainage and minimize erosion or abrasion of the cover, (4) accommodate settling and subsidence so that the cover's integrity is maintained, and (5) have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

Additional information and guidance for covers at uncontrolled waste sites is provided in Covers for Uncontrolled Hazardous Waste Sites (EPA/540/2-85/002, September 1985). This document provides recommended guidance for meeting the regulatory requirements stated above. For your convenience, I have enclosed a copy of the minimum requirements for a RCRA cover. These two pages are copied directly from Covers for Uncontrolled Hazardous Waste Sites, EPA/540/2-85/002, September 1985.

It is EPA's discretion to support alternate cover designs. "The EPA emphasizes that recommendations are guidance only and not regulation. EPA recognizes other final cover designs may be acceptable, depending on site specific conditions and a determination that an alternative design adequately fulfills regulatory requirements. It is, however, the responsibility of

the facility owner/operator to prove that the alternative design will provide a level of performance that is at least equivalent to that of the cover system described in the guidance document."

If you have any further questions regarding this matter, please contact me at (509) 376-8665.

Sincerely

Paul R. Beaver
Unit Manager

Enclosure

cc: Mark Buckmaster, WHC
Rich Carlson, WHC
Julie Erickson, DOE
Doug Sherwood, EPA
Darci Teel, WDOE
Nancy Uziemblo, WDOE

Recommended guidance has been developed for meeting these five regulatory requirements although alternative designs could also meet the five regulatory requirements. The ability of alternative designs to meet the five regulatory requirements would have to be demonstrated with more detail than the recommended design.

The RCRA guidance for covers specifies that the cover should consist of the following as minimum:

- Vegetated top cover
- Middle drainage layer
- Low permeability bottom layer
  - > 20 mil synthetic - upper component (may be optional)
  - $\geq$ 2 ft clay layer - lower component

Detailed guidance on each component is as follows:

A) Vegetated Top Cover

- o minimum 24 in. thick
- o should support vegetation that minimizes erosion without continued maintenance
- o planted with persistent species - no roots that will penetrate beyond the vegetative and drainage layers
- o top slope, after settling and subsidence, of between 3-5% - if > 5% use USDA Universal Soil Loss Equation to demonstrate a soil loss of < 2.0 tons/acre/yr.
- o surface drainage system capable of conducting runoff across cap with no problems.

B) Middle Drainage Layer

- o minimum 12 in. thick
- o saturated conductivity not less than 1×10^{-3} cm/sec
- o bottom slope of at least 2 percent
- o designed to prevent clogging - overlain by a graded granular or synthetic fabric filter
- o discharge flows freely

- The granular or fabric filter is used to prevent plugging of the porous media with fine earth particles carried down from the vegetated layer.

- To prevent fluid from backing up into the drainage layer, the discharge at the site should flow freely (the edge of the unit should drain freely, e.g., into surface runoff ditch).

C) Low Permeability Bottom Layer

- upper component

  - o at least 20 mil synthetic (may be optional)
  - o bedding layer at least 6 ft thick - no coarser than unified soil classification system sand (sp)
  - o final upper slope at least 2%
  - o be located wholly below the average depth of frost penetration in the area of interest

- lower component

  - o at least 2 ft of soil recompacted to a saturated conductivity of not more than 1×10^{-7} cm/sec
  - o soil emplaced in lifts not exceeding 6 inches before compaction.

CORRESPONDENCE DISTRIBUTION COVERSHEET

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Subject: RECORD OF DECISION REQUIREMENTS FOR 200-BP-1 OPERABLE UNIT

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